

REMARKS/ARGUMENTS

The applicants' attorney would like to thank the Examiner for his time during the telephone interview of March 14, 2006. The independent claims were discussed in relation to Bhardwaj et al. The Examiner agreed that the amendments to claims 29 and 37 overcome the teachings of Bhardwaj et al.

Claims 1-13, 16-19, 21-22, 30-31, and 36 have been canceled. Claims 38-41 have been added. Claims 29 and 37 have been amended. Claims 14-15, 20, 23-29, 32-35, and 37-41 are pending.

The Examiner rejected claims 29-36 under 35 U.S.C. 102(b) as being anticipated by Bhardwaj et al. (US 6,051,503). Claim 29 has been amended to recite that the ramping is at least one of a continuous ramping and a series of discrete steps that mimic a continuous ramping. In addition, claim 29 has been amended to recited that the ramping ramps the flow rate of the component gas. These features are supported by FIG. 5 and FIG. 6 and on page 10, line 11, to page 11, line 7, of the application. Bhardwaj does not disclose or make obvious a ramp that is either a continuous ramping or a series of discrete steps that mimic a continuous ramping. A series of discrete steps that mimic a continuous ramping suggests a kind of step ramp, such as shown in FIG. 6 and described on page 10, lines 21 to 24, of the application. Col. 6, lines 43-49, of Bhardwaj states that "ramped" means that parameters are progressively increase or decrease cycle by cycle in amplitude or period, as illustrated in FIG. 9(ii). Therefore, Bhardwaj does not provide a continuous ramp but instead ramps cycle by cycle, as shown in FIG. 9(ii). As shown in FIG. 9(ii) of Bhardwaj each cycle has the signal reach an amplitude and then goes down to a base value before increasing to a new amplitude. Since the signal value goes down to a base value during each cycle Bhardwaj does not have discrete steps that mimic a continuous ramping. Since the ramping of Bhardwaj is cycle by cycle, such ramping is not a series of discrete steps that mimic a continuous ramping, as recited in claim 29, as amended. Claim 29 has also been amended to recite that the etch layer is a single uniform etch layer. This is supported on page 5, lines 13-14, of the application. For at least these reasons, claim 29, as amended, is not anticipated or made obvious by Bhardwaj.

The Examiner rejected claims 14, 15, and 21-28 under 35 U.S.C. 103(a) as being unpatentable over Bhardwaj in view of Hsieh et al. (US 6,949,203). The Examiner cites Fig. 4 of Bhardwaj as teaching a first etch rate of about 100 angstrom/min, a second etch rate of about 200 angstrom/min, and a third etch rate of about 400 angstrom/min, stating that since the etch rate is increased between each step, the Examiner will interpret that Bhardwaj teaches that the third plasma is more aggressive to the second plasma, and the second plasma is more aggressive to the first plasma. Col. 2, lines 66-67, of Bhardwaj states that FIG. 4 is a plot of etch rate of silicon against the percentage of CH<sub>4</sub> and H<sub>2</sub>. The Examiner failed to point out anything in Bhardwaj that states that the data between 10% to 20% on the x-axis are a first, second, and third etch step of an etch process of Bhardwaj. The Examiner failed to point out anything in Hsieh that remedies this deficiency. For at least these reasons, claim 14 is not made obvious by Bhardwaj in view of Hsieh.

The Examiner rejected claim 37 under 35 U.S.C. 103(a) as being unpatentable over Stolze (US 6,449,038) in view of Bhardwaj. Claim 37 has been amended to state that the ramping is at least one of a continuous ramping and a series of discrete steps that mimic a continuous ramping. For at least this reason, claim 37, as amended, is not anticipated or made obvious by Stolze in view of Bhardwaj.

Dependent claims 15, 20-28, and 32-35 also patentably distinct from cited references for at least the same reasons as those recited above for independent claims, upon which they ultimately depend. These claims recite additional limitations that further distinguish these dependent claims from the cited references.

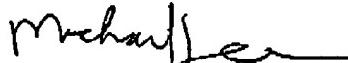
For example, claims 15 and 27-28 further teach that the ramping causes a change in selectivity. The Examiner states that col. 9, lines 15-19, of Bhardwaj teaches this. The applicant's attorney's understanding of lines 5-17, of col. 9 of Bhardwaj, are that by adding a high bias to the prior art notching may be reduced, but that such a high bias degrades mask selectivity. Bhardwaj, col. 9, lines 18-19, then state using "abrupt parameter variation" results in corresponding abrupt sidewall change. Then Bhardwaj, col. 9, lines 19-23, then states that ramping maintains high selectivities. The applicant's attorney did not see anything in this passage that teaches or suggests that ramping causes the selectivity to change over time as recited in claims 15 and 27-28.

In addition, claim 26 further recites that the etch layer is a dielectric layer. The Examiner stated that Bhardwaj fails to disclose that the etch layer is a dielectric layer. It would not be obvious to combine Hsieh with Bhardwaj to use a dielectric layer as the etch layer in Bhardwaj. The Examiner failed to show that the process taught in Bhardwaj would be successful for etching a dielectric layer. MPEP 706.02(j) states that the "teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure." For at least these reasons, claims 15, 20-28, and 32-35 are not anticipated or made obvious by the cited references.

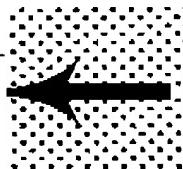
New claims 38-41 have been added. These claims are dependent on claim 29 and provide additional limitations.

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at telephone number (650) 961-8300.

Respectfully submitted,  
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SIGN  
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